1863MNRAS..23..178P

It will be seen that there is much less detail in the later drawings, which are scarcely comparable with the early ones on account of the greatly increased distance of the planet.

Proceedings of the Madras Observatory. By Norman Pogson, Esq., Director of the Observatory.

The following Memorandum, relating to the current and the proposed work of the Madras Observatory, has been transmitted by Mr. Pogson to the Astronomer Royal:

"The proceedings of the Madras Observatory during the past two years, although not yet before the public, nor indeed likely to be so at present, may not be without sufficient interest to warrant a brief recapitulation. The new Transit Circle was finally completed and commenced its career of service on the 1st June, 1862. It yields the most satisfactory results as regards steadiness in all its corrections, and is being employed for the determination of the positions of comparison stars used for equatoreal observations, of all observable variable stars, of such small planets as come to opposition south of the equator, and generally for the formation of a Catalogue of new small southern stars as zero points for the Southern Celestial Survey, now in hand. This latter work, announced in the *Monthly Notice* of last June, was commenced on the first night of this year, and will be proceeded with rapidly, aided, it is hoped, by an experienced assistant whom it is intended to request Prof. Argelander to nominate, so soon as the sanction already granted by the local government has been confirmed by the supreme authorities.

"The Variable-Star-Atlas is just beginning to be engraved, and as from its nature it can only be proceeded with on perfectly clear moonless nights, must necessarily be some time in hand—interfering certainly to some extent with the Southern Survey, but not being in any way delayed by the contemporaneous execution of that far higher and more comprehensive work now fairly in hand. A useful Catalogue of Stars observed under the management of Lieut.-Col. Worster, when acting Astronomer, is in an advanced state of reduction. Observations of the fine comets of 1858, 1861, and 1862, and of several small planets, await the determination of the comparison stars employed by the Transit Circle, all which will, it is hoped, be secured in the ensuing fine season.

"The Magnetical and Meteorological records, carried on hourly for the twenty years 1831–1860, are wearily advancing as regards reduction and publication. The former are printed up to 1854, the latter a year further on. These heavy arrears

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1863MNRAS..23..179.

form the most trying portion of the observatory duties, and most grievously interfere with the astronomical department at the present time. Twenty districts, each averaging about seven talugs, are now made to send rain returns to the Observatory, and the arrangement of these, more especially the sifting and summing up of the registers of eight years past, will be no trifling additional task.

"The planet *Mars* was duly observed as proposed when in opposition, for the investigation of the Solar Parallax, both with the Equatoreal at rising and setting, and with the Transit Circle at meridian passage; but owing to pressure of other immediate duties, the observations have not yet been sufficiently reduced for submission to their respective head-quarters, viz., Greenwich and Pulkova.

"Some highly desirable longitude determinations are under contemplation throughout India, at no distant period, by means of the electric telegraph, and as a first step thereto, the construction of a chronograph has been sanctioned by the Local Government. A new Equatoreal of larger aperture and a superior Anemometer are expected to be supplied shortly. The present instruments are all in fair order, having been cleaned up and repaired by Mr. F. Doderet, the mathematical instrument maker to the Public Works Department, from which his services were transferred to the Observatory throughout the first half of the past year."

Madras, 1863, *Jan.* 26.

At a recent meeting of the Royal Society, our Fellow, Mr. Huggins, in conjunction with Dr. W. A. Miller, the Treasurer of that Society, communicated a Note on the "Lines in the Spectra of some of the Fixed Stars," as an earnest of the results of twelve months' observations of some 30 or 40 stars, the Moon, *Jupiter*, and *Mars*, which are to follow.

The valuable observations of Dr. Miller on the photographic spectra of the metals, &c., are too well known to require mention here, did not a recent deduction from them hold out great promise of doing for the *temperature* of the Sun and stars what the magnificent generalisation of Kirchoff has done for their *chemical constitution.* It has been shown that the spectra of metals vary with the temperature of the source of light, the higher the temperature the more refrangible being the vibrations. Thus, by introducing lime and sulphate of magnesia into the oxyhydrogen jet, the flame of which, according to Bunsen, cannot exceed 14580° Fahr., a spectrum has been obtained corresponding in length with that of the Sun; by employing the

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